Technical Evaluation Report

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1.0   EXECUTIVE SUMMARY

The operational deployments NATO Forces are conducting often present very high levels of stress for the soldiers. Large numbers of them (up to 15% within the U.S. Infantry) develop mental health problems afterwards. These include Post Traumatic Stress Disorder (PTSD), a wide range of co-morbidity (e.g. alcohol-misuse, violence, dangerous driving…) and a much increased risk for suicide.

To address these problems that engender lots of suffering for the veterans and their families and draw significant resources to provide them with adequate care, the Human Factors and Medicine Panel (HFMP) of NATO's Research and Technology Organization (RTO) has initiated a successful series of Technical Activities on advancing the science, the options for applications and the state-of-practice in the challenging area of mental health (e.g. HFM-081, 103, 159, 171, 175, 178, 179, 193, 203). The HFM-205 Symposium provided a timely and successful venue to set a framework for future HFMP work on Mental Health and Well-Being within the Military.

The Symposium's Program Committee selected 4 keynotes and 41 papers that covered a wide range of topics pertinent to the symposium's theme. Most of them dealt with mental health problems and their treatment and mental health training. There were few papers specifically addressing well-being.

The mental health problems issue clearly has two faces: prevention and treatment. In the course of the symposium, evidence emerged that the relationship between exposure to one or more traumatic events and the development of PTSD isn't a simple stimulus-response reaction. Many parameters (e.g. personality, leadership quality, unit-cohesion, duration of deployment versus expected duration…) intervene in the process of developing PTSD and its co-morbidity or not. These parameters offer the opportunity for further preventive action. Mental health training is a very important tool for prevention indeed but additional actions to create a Military-wide favorable environment are urgently needed.

In the domain of problem treatment, it was noticed that while help is available, many veterans in need don't seek help or drop out of therapy early. Among the reasons for not seeking help, stigma (i.e. the fear of negative consequences of admitting having a problem such as rejection by peers or jeopardized career prospects) and negative perceptions (e.g. "I don't trust mental health professionals") are seen as the most prominent barriers. Changing attitudes is key to increase the probability that veterans in need seek help indeed. Implementing the desirable attitude change within a traditionally tough (macho) military culture is a real challenge and specific research to support this endeavor is recommended.

Some emerging technologies were presented: these include virtual reality training, neurofeedback and telerehabilitation. The technologies look promising but currently lack sufficient empirical and pertinent evidence. It is recommended that well-designed research be conducted to demonstrate the usability of these technologies in real world settings.

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2.0 INTRODUCTION

Resolving international conflicts, that's a historical constant, needs boots on the ground. The – often sad – truth behind the statement is that in these boots there are soldiers standing who often experience terrible things such as being shot at, witnessing the death of comrades, seeing distressed civilians without being authorized or able to help, encountering human remains or facing child soldiers and much more. Many young and healthy soldiers have difficulties in coping with these amounts of stress and unfortunately significant numbers of them develop mental health problems which perpetuate their nightmare. NATO and Military Commands are nowadays more than ever aware of these problems and devote considerable attention and resources to help reducing them. Finding the right means to help the hurt soldiers is paramount and for that purpose the Human Factors and Medicine Panel initiated and endorsed a series of technical research activities. The HFM-205 Symposium on Mental Health and Well-Being Across the Military Spectrum is a logical step in the HFM commitment to soldiers' health and well-being.

Forty five technical papers (41 podium; 4 keynotes) were scheduled, representing research and development efforts in fifteen nations (twelve NATO, two PfP nations and one Mediterranean Dialogue nation). The Symposium convened in Bergen (NOR) at the "Grand Sekskapslokaler" from Monday, 11 April to Wednesday, 13 April 2011. 134 Scientists and practitioners participated in the symposium.

3.0 TECHNICAL EVALUATION

This Technical evaluation will be organized into 4 sections: the Symposium organization and venue, the technical content of the keynotes, the need to broaden the scope and recommendations for future research.

The report will end with a summary of the recommendations offered to the Human Factors and Medicine Panel for consideration.

3.1 Symposium Organization –Themes, Presentations and Venue

The theme of the symposium "*Mental Health and Well-Being Across the Military Spectrum*" is without any doubt extremely important and timely. Many NATO nations are currently actively involved in Iraq, Afghanistan and other theatres. And while we can seek comfort in the idea that the number of casualties is decreasing compared to previous major conflicts, it remains distressing that large numbers of soldiers return home with mental problems or develop these when trying to readjust to normal life. That's likely the reason why the symposium's theme, which is very broad indeed, was framed from the onset: the TAPS[1] for the symposium list:

- Mental health training
- Mental health screening
- Third location decompression
- Military mental health skills development

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[1] TAPS: Technical Activity Proposal Sheet

- Health risk behaviors

- Prevention of suicides

- Psychological resiliency

- Leadership and organizational interventions to sustain psychological health and well-being

- Prevention of substance abuse and PTSD

- Psychological/Psychiatric treatments

- Best practice guidelines/standards

Given this reduction of the general theme, it appears that the Program Committee's selection of 45 technical papers met the symposium's goals well. The task of the Program Committee isn't an easy one in the current RTO symposium format for at least two reasons. First, the Program Committee is limited to select papers from the pool of submitted proposals. There is little possibility to attract other papers to cover specific gaps in the symposium program when these aren't addressed by the received proposals. Second, the Program Committee's assessment of the suitability of a paper proposal is based on a short abstract which cannot tell the whole story. Two problems were encountered later when the final papers were delivered: one paper was very weak from a methodological point of view and another one was written in such poor English that reading it (not to speak of *understanding* it) required high levels of resilience.

In general however, the presented papers were of acceptable or good quality. They were a balanced mix of overviews of current findings or literature, comparisons between current practice in different countries, methodologically sound research reports, presentations of emerging technologies or therapies, descriptions of current practice in some particular domains and case studies.

It is regretted that three speakers didn't submit a full paper. For one, the given reason was that the author also submitted the paper for publication in a peer reviewed journal under the provision that the paper couldn't be published elsewhere previously. She therefore couldn't submit her full paper to the RTA.

The symposium was organized in 3 periods for keynotes and 6 sessions, each one lead by a member of the Program Committee or Paul Bartone replacing Edward Simmer who couldn't attend. The Program Committee "seeded" the presentation agenda with keynotes by very senior authors. This was highly successful in setting a adequate framework for the sessions. The sessions covered: 'Mental health training', 'Trauma, stress and treatment', 'Mental health screening and method development', 'Predictors of resilience and risk', 'Substance abuse and suicide' and 'Operational stress and deployment'. Questions were allowed time permitting and the Session Chairs summarized briefly the topics presented in their session. There was an excellent time keeper (Dennis McGurk) throughout the symposium, which had the great advantage that the schedule was respected perfectly. One possible drawback is that public questions or discussions sometimes had to be limited for the sake of time.

The selected venue for the symposium (Grand Selskapslokaler[2] – Bergen) was excellent. It was conveniently located in the city center within easy walking distance of the proposed hotels. The conference room was well equipped and perfectly fit for this symposium. Coffee breaks and lunch were served on the premises. The local host organized two social events: a welcome reception hosted at the Håkonshallen by the Mayor of Bergen and a symposium dinner at the Naval Academy (Sjøkrigsskolen). Both events were well attended and contributed to professional networking and further discussion of the symposium topics.

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[2] www.grand-selskap.no

TER Recommendation #1: When an author is unable to produce a full paper in acceptable English, the odds are high that he/she won't be able to present in a satisfactory way either. To avoid a waste of time for the audience and foster the overall symposium quality, it is recommended to remove such papers from the program. The Technical Evaluator, who is the first to review the full papers, might notify such cases to the Program Committee Chair who then could decide whether or not to remove the paper.

3.2   Framing the Issues – the Keynotes

The keynotes presented at the symposium were well selected as these provided an adequate background for the other presentations. Two keynotes gave an overview from a different perspective of the core problem that is currently faced in the military mental health arena: PTSD. One keynote looked at stress from a theoretical and experimental point of view and one looked closer at the concepts of need of care, care and the barriers preventing seeking of care.

- MGen James K. Gilman gave the first keynote: "Post Traumatic Stress Disorder and Mental Health Issues in the US Military". Starting from a sad case study of Keith, a veteran who finally committed suicide, James Gilman gave an overview of the prevalence of PTSD among US veterans. He further stressed the fact that approximately 75% of the PTSD cases are accompanied by some form of co-morbid condition and that suicide rates are increasing dramatically within the US Army and Marine Corps. He also gave an overview of models designed to frame the complexity involved in prevention, treatment and research concerning PTSD and suicide. He especially made anyone aware of the fact that research and dedication should be directed at all individuals such as Keith who serve their country and are in need of help.

- As second keynote speaker, Dr. Mark A. Zamorski made a presentation titled: "Towards a Broader Conceptualization of Need, Stigma, and Barriers to Mental Health Care in Military Organizations". In his address, he discussed the conventional and a broader conceptualization of 'Need for care', 'Unmet need', 'Care', 'Barriers' and 'Stigma' and implications for practice and research. He noticed a substantial dysfunction in many veterans without any apparent Axis I disorder and concluded that the prevalence of mental health problems is much larger than seen from morbidity statistics. He therefore advocates studying the barriers to care as an important and independent topic.

- The third keynote speaker, Professor Holger Ursin, spoke about "CATS: Cognitive Activation Theory of Stress". In his presentation, he reviewed basic theories of stress and human behavior dealing with stress. He well defined concepts such as 'response expectancy', 'coping', 'helplessness' and 'hopelessness' and doing so, reminded us of the need to use well-defined terms in any scientific approach. Finally, he reminded us that subjective health complaints are a normal phenomenon, so the interesting question is about the mechanism that triggers a subjective feeling to be categorized and expressed as a formal complaint.

- The final keynote was presented by Col (Rtd) Charles Hoge. He spoke about "Epidemiology and Treatment of Combat-Related PTSD in U.S. Service Members: Lessons Learned". He gave a comprehensive overview of traumatizing combat experiences, PTSD prevalence, co-morbidity and other combat-related reactions, and U.S. key health care strategies. He reported that from the warriors in need of care only half of them received care and blamed stigma but also common inadequate perceptions of mental health care and beliefs as important reasons for that. He also reported that over 50% of the veterans dropped out of care programs before completion and presented a few paths for further research to enhance care.

Taken as a whole these keynote presentations were very successful in setting the scene for the remainder of the symposium.

3.3   The Need to Broaden the Scope

This symposium was quite focused on PTSD, Traumatic Brain Injuries and co-morbid mental health **problems** and rightfully so for these are important causes of suffering of soldiers and their family. Yet, mental health and well-being are part of a broader picture and it is good to have a look at different facets of it, for in the area of our interest, nothing is really independent. There were a few topics that didn't get a lot of attention but which are closely linked to mental health and well-being in the Military and therefore deserve to be included in the holistic efforts made to reach resiliness and well-being.

3.3.1   Selection and Classification

Why consider selection and classification? Well the thing is that many links were made to the soldiers' life **before** enlistment:

- Sanela Dursun[3] showed clear relations between personality traits of the 'Big Five' personality traits and mental health indicators;

- Jarle Eid[4] stated that "*psychological hardiness is an individual disposition or style that develops early in life and is reasonably stable over time[5]*"

- Robin Hauffa[6] saw Sensation Seeking as a personality trait;

- Merle Parmak[7] reported that for some personality types, deployment is harder to endure than to others; and

- Maciej Zbyszewski[8] pointed out that early childhood trauma can condition later trauma reactions.

So if there are indicators such as personality or previous life events that show some individuals as more vulnerable than others for mental health problems, why not use these?

There are important differences between the US for instance and many European countries in the use of personality assessment during the selection process. The traditional reason for not including personality assessment is the lack of predictive validity (against performance criteria). However, two developments are worth noticing:

- First, Forces might be challenged for **not** having screened their enlisted personnel. This is currently not the case but this happens in civilian life where employers have been forced to defend an ever-increasing number of negligent hiring lawsuits that seek redress for problems caused or endured by their own employees. The lawsuits content that the employer negligently placed an applicant with unfit propensities, which should have been easily discovered by reasonably diligent investigation, into an employment situation where it was foreseeable that the subject employee would be at risk. Pre-employment testing does provide a way to produce documented evidence that the employer did make a reasonable and prudent investigation of the applicant's mental fitness.

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[3] Paper #20

[4] Paper #33

[5] Though amenable to change and trainable under certain conditions (Kobasa, 1979; Maddi & Kobasa, 1984). (Cdr. Jarle Eid #33);

[6] Paper #23

[7] Paper #38

[8] Paper #13

- Second, there are interesting developments in personality assessment technology that address previous methodological drawbacks such as faking behavior (e.g. The work of Chernyshenko & Stark: The Tailored Adaptive Personality Assessment System (TAPAS) Multidimensional Pairwise Preference Personality Test based on the IRT showing incremental predictive validity over the ASVAB[9]).

TER Recommendation #2: Study the inclusion of personality assessment in selection and classification to lower the presence of persons with more vulnerable personalities within the Military as a whole or especially within combat trades.

3.3.2 Attitude and Organizational Culture

As Mark Zamorski[10] said, a lot about mental health problems and mental health training has to do with attitude. Stigma or the lack of belief in mental health training is to a large extend embedded in organizational culture. Yet, in many Forces, there is still an unacceptable presence of bullying, harassment, discrimination and macho culture and behavior, especially within the combat arms and in the first phases of military careers. As Deanne Chafe[11] put it: "We need to create a supportive environment favoring mentally healthy behavior". Well as a matter of fact, sometimes peers, instructors or line commanders are no part of the solution, but of the problem. According to Mark Zamorski[12], stigma has been identified as a significant barrier to mental health care in military organizations and it has also been asserted that service members suffer disproportionately because of the culture of mental toughness that pervades military life. Charles Hoge[13] said that negative perceptions of mental health care may be more important than stigma in predicting help seeking. In one of his studies, he found that 25% agree or strongly agree with the statement: "I don't trust mental health professionals." The point we want to make here is that similar perceptions are more often shared among peers than developed independently. Working on the mainstream beliefs and attitudes within units should therefore be helpful in modifying the individuals' perceptions in seeking help.

Mark Zamorski told us that there may be <u>structural solutions</u> to attitudinal barriers, such as confidentiality, walk in services, after hours services and so on. Structural solutions should also include things as implementing zero-tolerance on bullying and harassment and challenging the commanders of units showing the wrong attitudes. We need to make the commanders (at least partly) responsible for the mainstream attitudes within their units.

TER Recommendation #3: We have to look at attitudes and organizational culture and make sure that the right attitudes are developed. An interesting challenge is to implement the right attitudes in a traditionally tough macho-culture and to make line-commanders partially responsible for the mainstream attitudes within their unit.

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[9] Stark, S., Drasgow, F. & Chernyshenko, O. *Update on the Tailored Adaptive Personality Assessment System (TAPAS): A Pilot Testing Program on the ASVAB Testing Platform*. <u>Proceedings of the 51st Annual Conference of the International Military Testing Association</u>. 2009

[10] Keynote #2

[11] Paper #3

[12] Keynote #2

[13] Keynote #4

3.3.3   General Well-Being

Mark Bates[14] presented the concept very well and discussed the relation between well-being and suicide. Well-being or more precisely the lack of it often leads to a variety of problems. And just to name one: Attrition. Retention is a huge problem in many Forces. Caroline Six[15] mentioned 60% attrition with the Dutch Navy. In Belgium, 50% of the enlisted personnel leave before 24 months of service, most of them on a voluntary basis.

Well-being is important to reduce attrition, improve commitment and organizational loyalty and so on, but is also subject to stressors such as:

3.3.3.1   Organizational Changes

•   Downsizing and budget cuts may raise loyalty issues and increase negative thinking; and

•   The end of conscription, etc.

3.3.3.2   Stress from Operational Requirements

•   Wayne Chapelle16 reported high levels of stress among Remotely Piloted Aircraft operators; and

•   Changing postings and the strain these impose on the families, etc.

TER Recommendation #4: If we as Military want to be an employer of choice and perform well, we'd better take care of the well-being of **all** our personnel in the **whole** military spectrum.

3.3.4   Lower Stress in Theatre

While it is hard to prevent traumatic incidents to happen when deployed, it is worthwhile to engage in actions aimed at the prevention of non-traumatic sources of stress. These might include:

•   Reduce rumors (Information operations);

•   Enhance sense making;

•   Fight boredom: Christian Moldjord17 reported that boredom was the second most frequently experienced stressor in his study on a Norwegian Aeromedical Detachment;

•   Promote sleep hygiene as Stacy Young18 suggested;

•   Try to have ROE that aren't too stressing for those who have to apply them.

TER Recommendation #5: More preventive action in theatre is recommended to lower the levels of non-traumatic stress when deployed.

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[14] Paper #29

[15] Paper #6

[16] Paper #19

[17] Paper #10

[18] Paper #26

3.3.5   Pharmacology

Little or no presentations addressed pharmalogical help in preventing or reducing mental health outcomes of traumatic experiences, and that is a pity. We clearly recommend taking pharmacological resources into account when addressing ways to prevent or treat mental health problems.

3.4   Recommendations for Future Research

3.4.1   Striking Differences in Prevalence of PTSD

There is overwhelming evidence that combat deployments increase the prevalence of mental health problems such as PTSD among soldiers. The baseline rates after deployment compared to baseline rates before deployment for those in combat often increase 2-3 times. One striking fact however, is the huge difference in the prevalence of PTSD between countries and Jörn Ungerer[19] illustrated that very well.

As was reported by James Gilman[20] and Charles Hoge[21]: the prevalence in the general US population is 3 to 6% whereas the prevalence within post-deployment Infantry turns around 15% (ranges from 6 to 25%).

On the other hand, other countries report much smaller numbers:

- Mark Zamorski[22] reports 9% of the men with mental disorders and 6% of the women in Canada.
- Kathleen Mulligan[23] and Neil Greenberg [24] speak about 4% in the UK[25]
- Jörn Ungerer mentioned 2% for Germany;
- Mette Bertelsen[26] showed that the level of psychological after effects among Danish soldiers also was quite low: 1.5%.

3.4.1.1   An Artifact?

Under the theoretical hypothesis of a (partial) artifact, one could assume that NATO soldiers react similarly to stressors but that the differences in prevalence are due to measurement issues. Most measures rely on subjective self report data and we know these are subject to a number of sources of bias. Paul Bliese[27] named a few concerning surveys. Jarle Eid[28] reported that for multiple reasons including self-enhancement bias and social desirability, individuals may provide **untrue** responses to survey questions, especially when the

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[19] Paper #14

[20] Keynote #1

[21] Keynote #4

[22] Keynote #2

[23] Paper #5

[24] Paper #21

[25] UK: Prevalence of probable post-traumatic stress disorder (PTSD) was 2.4% (n = 59/2420) at baseline and 3.9% (63/1597) at follow-up.

[26] Paper #34

[27] Presenting Paper# 30

[28] Paper #33

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questions concern socially sensitive issues (such as alcohol use or abuse) (Kruegar, 1998). Holger Ursin[29] reminded us that having subjective complaints is a normal thing. So even when the respondent's intention is to give **true** answers, there is no guarantee that the truth will emerge. What factors make that the threshold is reached and the respondent reports a subjective feeling as a complaint? We suggest two:

- Mental health education: The principle of "*It's ok not to be ok!*" and an increased awareness of stress related symptoms might facilitate the recognition of mental health symptoms and their expression. This might lead to following paradox: better psycho-education aimed at lowering the prevalence of problems can lead to higher prevalence **statistics**! (Beware of the conclusions!).

- Membership issues: As we can assume that most soldiers nowadays are at least aware of the fact that being deployed can generate mental health problems, it is to be expected that soldiers sharing the belief that they were involved in high intensity fights will implicitly expect the probability of being at risk for mental health problems, which facilitates the expression of mental health complaints.

Other causes that may explain the differences in measured prevalence include:

- The presence of standard screening programs after deployment (Noticed by Manon Boeschoten30) which may reveal more problems compared to situations without screenings;

- The use of different definitions or standards when mental health problems are reported. (e.g. the used PTSD Check List (PCL) cut-off score to identify probable PTSD (Reported by Mette Bertelsen[31]))

Of cause, if the differences in prevalence are (partially) due to measurement artifacts, it cannot be excluded that the low incidence levels represent an under-estimation rather than the high levels represent an over-estimation of the problems. As Mark Zamorski[32] said: "*We need to better understand the hidden unmet need*" He reports that occupational dysfunction due to distress or mental health problems is much more common than often believed.

3.4.1.2   If not an Artifact, What Are the Causes?

If, on the other hand, the measures of prevalence are (essentially) correct, then why is the prevalence of PTSD so much higher among US military? The answer to that question is crucial to identify the real triggers of PTSD. Neil Greenberg[33], Pavel Kral[34] and Paul Bliese[35] named a number of possible parameters of deployments that might be pertinent to the question:

- Length of deployment?
  - US deployments are quite long compared to those of other countries.
  - Neil Greenberg found some evidence that prevalence of PTSD raises when:

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[29] Keynote #3

[30] Paper #37

[31] Paper #34

[32] Keynote #2

[33] Paper #21

[34] Paper #35

[35] Presenting Paper #30

- the "Harmony Guidelines" (not more than one year in three) aren't respected.

- the deployment is stretched further than originally expected.

- Multiple deployments?

  - Neil Greenberg found no evidence that multiple deployments raised the probability to develop PTSD (but in discussion, the question was raised of self-selection in or out second or later deployments).

- Location?

- Exposure?

  - Paul Bliese showed that it's probably not.

- Leadership?

  - Poor leadership leads to higher incidence. (Neil Greenberg and Pavel Kral)

- Unit cohesion?

  - Has been repeatedly shown to be protective to troop's mental health. (Neil Greenberg)

- Mental Health Support programs?

  - Kathleen Mulligan[36] studied the use of the US Battlemind versus the British Standard Brief to find out whether the methods yield a different outcome in mental problems. Overall, little difference was found. It was however found that the US Battlemind approach significantly reduced binge drinking among UK soldiers compared to the Bristish Standard Brief. Given the magnitude of this problem in the UK, this is an interesting result.

TER Recommendation #6: Understanding the true parameters that yield PTSD is extremely important. A number of hypotheses have been enumerated and need to be further investigated. Given the nature of the research question, an **international** collaborative approach is recommended.

3.4.2   Further Research is Needed

That is a sentence that was much heard during the symposium. It's probably fair to state that the scientific knowledge on mental health and well-being has progressed tremendously over the last decade. Yet, there is still a lot to better understand. As James Gilman[37] reminded us; our research is there to help our soldiers and their families in the first place and help sustain our military capability where possible. The fact is also that while practioners can give their best to their patients, in order to yield new verified knowledge, scientific methods and research projects are needed.

3.4.2.1   Why is Further Research Needed?

3.4.2.1.1   To Make Sure the Best Practices are the Best Indeed

A couple of examples were cited of practices that have been shown useless or even counterproductive:

- Screening before deployment

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[36] Paper #5

[37] Keynote #1

- Mette Bertelsen[38] reported that for the time being, screening of soldiers with PCL or BDI-II *before* deployment would not significantly bring down the numbers of soldiers returning from combat with psychological after effects.

- Manon Boeschoten[39] confirmed that the 5 NATO countries that were reviewed in her analysis of current practices abandoned Mental Health screening before deployment for the lack of predictive value.

- Critical Incident Stress Defriefing was also abandoned: Manon Boeschoten wrote: "*This is a recent corrective measure all participating countries took, based on the extensive empirical evaluation of this practice demonstrating no evidence of its effectiveness and even risks of negative effects on Mental Health especially for those who are most visibly distressed.*"

- James Gilman[40] mentioned that as PTSD often cannot be pinned to one specific trauma, it is no longer necessary to track down the event.

These are good examples of how scientific knowledge governs practice and so it should be. It is good to present new concepts (e.g. of therapy (Jörn Ungerer[41])) but it remains essential to assess their outcome. These examples demonstrate the usefulness of scientific minds: it's not enough to try to do well, but paramount to assess the outcome of practices.

3.4.2.1.2 To Better 'Sell' Programs and Interventions

A second reason why further research is needed on the efficacy of the used Mental Health programs and interventions was introduced by Carlo van Den Berge[42] when he described the list of principles and implementation needs of Mental Health Training: When these principles and implementation needs are translated into practice, it is clear that they will require substantial resources. In the Military as we know, resources such as qualified personnel, budgets or time during training always seem to be scarce. You can obtain resources based on the **moral obligation** decision makers have to take care of the mental health consequences soldiers suffer but these resources are better sustainable when efficacy is demonstrated. And somewhere in the command line, sooner or later, proven evidence will have to be demonstrated.

3.4.2.2 Communication:

Good communication deserves a paragraph in itself for it has numerous implications in the research that needs to be conducted:

- **Translate**: Mark Bates[43] writes: "*The stark reality is that the best knowledge about psychological health will be of little use unless successfully translated into a format that the operational military can understand and use.*"

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[38] Paper #34

[39] Paper #37

[40] Keynote #1

[41] Paper #14

[42] Paper #2

[43] Paper #29

- **Choose the right words**: It was noted that "*Resilience*" was easily accepted in the tough military culture.

- **External** communication with politicians and the media is also important. As Erik De Soir[44] reported from Belgium, wrongly perceived objectives of Third Location Decompression (TLD) by the media can completely ruin TLD projects.

- Good communication also includes good communication in research matters. This includes making efforts to well **define the terms** and -in international contexts- mastering at least a working knowledge of English.

3.4.3   What?

There are three domains that deserve particular attention and hence are recommended for further research initiatives.

3.4.3.1   *How to Implement the Right Attitudes?*

"*While mental health treatments are more effective than ever, data from both military and civilian settings have consistently shown that only a minority of those with mental disorders actually receives care.*" This is a disturbing sentence from Mark Zamorski[45] who also reports that many patients drop out of the therapy. Inadequate attitudes and beliefs are believed to cause this. It is therefore paramount to promote the right attitudes and beliefs. This is where mental health training comes in. Mental health training should target individuals, groups and leaders during their whole career beginning at boot camp where stress levels are often high. Mental health training cannot be limited to a few punctual actions but needs to be integrated in all facets of military life. Programs such as the 'Total Force Fitness' project in the U.S. (Presented by Mark Bates[46]), which is a multi-dimensional and holistic program for support for resilience and well-being across the Total Force, is an example of this principle. In quite some aspects of its implementation, mental health training is comparable to physical training and it may result in the conclusion that resources (qualified personnel, training time…) devoted to mental health training should be of similar magnitude of those devoted to physical training.

We're very much looking forward to the results of RTG 203 "Mental Health Training" that is planning to publish guidelines for NATO nations. This RTG is primarily focused on practical results given the urgency of the practical needs. In addition, further research is needed to address methodological questions concerning fostering attitude changes, especially in tough military organizational cultures.

3.4.3.2   *Mental Health and Well-Being Assessment Tools*

Assessment techniques and tools to reliably assess levels of mental health and well-being at the individual and unit level are paramount. These tools are necessary to manage mental health and well-being across the military spectrum. In particular, such tools can serve following purposes:

- Being included in performance appraisal used as predictive validity criterion for selection and military training;

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[44] Paper #11

[45] Keynote #2

[46] Paper #29

- Being used as dependent variable in mental health and well-being scientific research;

- Assess mental health training practice;

- Assess the operational readiness of a unit;

- Monitor the quality of leaders and unit cohesion.

3.4.3.3   *Emerging Technologies*

A few emerging technologies showing potential in mental health training and/or treatment were presented at the symposium:

- **Virtual reality**: Kresimir Cosic[47] presented a concept of closed-loop Virtual Reality Adaptive Stimulation (VRAS) that may strengthen cognitive capacities and cognitive strategies in threatening situations. VRAS stimulation training strategy is based on the gradual exposure of trainees to the real-life mission-oriented video clips characterized by different stressful contexts, semantics and emotional properties.

- **Neurofeedback**: Victor Kallen[48] presented some recent developments in the use of bio- and neurofeedback to support and enhance recovery and recuperation after expeditory deployment.

- **Telerehabilitation**: Kris Siddharthan[49] presented a research project concerning veterans with a diagnosis of mild or moderate TBI and or PTSD incurred in combat zones. He explores the possibilities of follow-up and counseling by means of secure internet technology while the veterans stay home.

These developments are quite promising. Yet, for the time being, there is a lack of empirical evidence that these technologies can help substantially. Further research is needed to demonstrate their usefulness in pertinent contexts (i.e. using the right samples and dependent variables). In addition, questions about implementation in the real world, scalability, sustainability and duration of positive effects should be addressed.

4.0   RECOMMENDATIONS

Important progress in NATO mental health and well-being knowledge and practice can be realized through continuing multinational exchanges of scientific and technical advances especially in the area of changing attitudes towards mental health problems and help seeking. A future program of R&T activities would be assisted by HFMP implementing the following recommendations:

TER Recommendation #1: When an author is unable to produce a full paper in acceptable English, the odds are high that he/she won't be able to present in a satisfactory way either. To avoid a waste of time for the audience and foster the overall symposium quality, it is recommended to remove such papers from the program. The Technical Evaluator, who is the first to review the full papers, might notify such cases to the Program Committee Chair who then could decide whether or not to remove the paper.

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[47] Paper #4

[48] Paper #17

[49] Paper #15

TER Recommendation #2: Study the inclusion of personality assessment in selection and classification to lower the presence of persons with more vulnerable personalities within the Military as a whole or especially within combat trades.

TER Recommendation #3: We have to look at attitudes and organizational culture and make sure that the right attitudes are developed. An interesting challenge is to implement the right attitudes in a traditionally tough macho-culture and to make line-commanders partially responsible for the mainstream attitudes within their unit.

TER Recommendation #4: If we as Military want to be an employer of choice and perform well, we'd better take care of the well-being of all our personnel in the **whole** military spectrum.

TER Recommendation #5: More preventive action in theatre is recommended to lower the levels of non-traumatic stress when deployed.

TER Recommendation #6: Understanding the true parameters that yield PTSD is extremely important. A number of hypotheses have been enumerated and need to be further investigated. Given the nature of the research question, an **international** collaborative approach is recommended.